Designlab

CL-1 Users' Guide

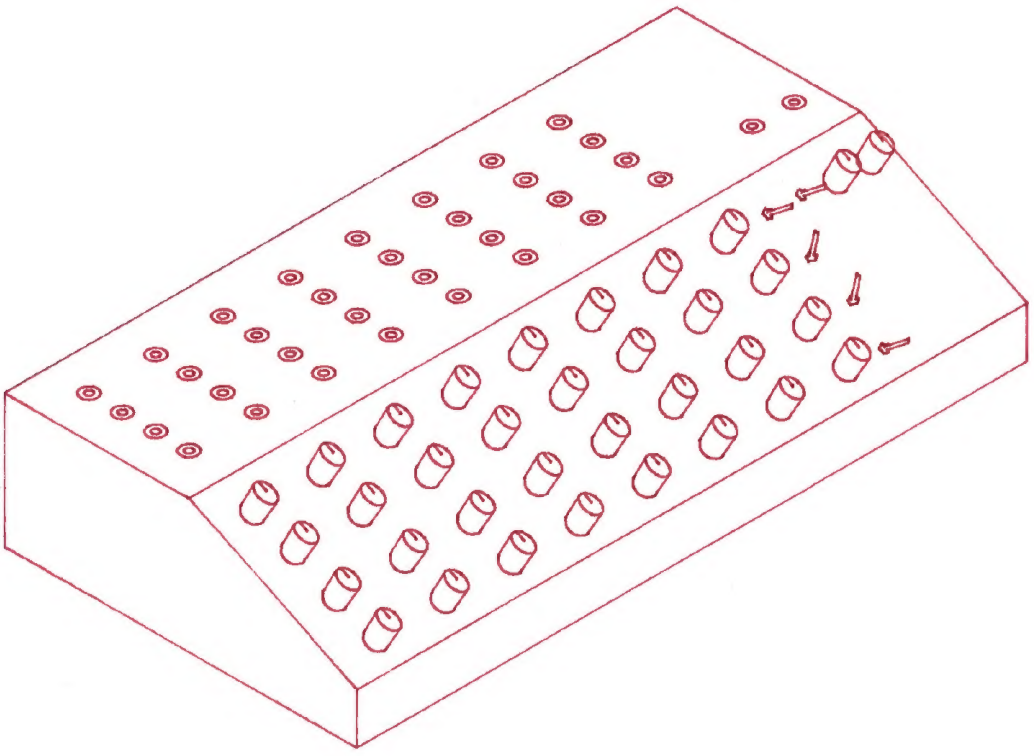

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Table of Contents:

Illustrations:

Introduction:

The CL-1 colorizer is a 4-channel colorizer with a soft-edged keying system built in. There are four identical channels that each have a color and video mixing section and a keying section. The four channels mix together in a dual mode mixer. The mixer is switchable between a simple blend of the four channels and a unique "Layered Mix". After the mixer, the signal goes through an "Output Amp" that turns the signal into an NTSC video image. The Output Amp also provides master contrast and brightness controls for the colorizer.

Getting Started:

Place the CL-1 on a table or in a standard 19 inch equipment rack. Make sure that the fan hole on the back of the CL-1 and the vent holes on the top and bottom are not blocked by anything. If these holes are blocked, the colorizer will overheat.

Push the bottom half of the power switch. This will set it to the OFF position. Plug the power cord into the back of the CL-1. Plug the other end into a 115 volt 60 cycle AC wall outlet.

There are four pairs of loop-thru sync inputs on the back of the CL-1. These sync signals come from a standard NTSC color sync generator. Each of these inputs are loop-thru inputs. This means that you can pass the sync signals through the CL-1 and on to other video processing machines. If you don't have any other machines to connect the sync to, you must place 75 ohm terminators on the extra BNC connectors.

The four video inputs are also loop-thru inputs. You can connect a camera to one of the video inputs and loop-thru to the next video input, or to another machine or monitor. You must again place a 75 ohm terminator on any unused loop-thru connectors.

There are two video outputs on the CL-1 colorizer. These outputs are identical. Connect one of these outputs to your VCR or to a monitor. The other output can be connected to an S.E.G. or any other video processing machine (or just put a terminator on it).

You should now be ready to turn on the colorizer. You should now have video and sync going into the colorizer, and the output should be going to a monitor (perhaps via a VCR). Push the power switch into the ON position. You should now hear the fan turn on, and the power switch should light up. If these don't both happen, refer to the troubleshooting section at the end of this manual.

Set all the knobs and switches to the settings shown in Fig. 1. The monitor screen should now be black. Now turn channel one brightness control all the way up. The screen should now be white. If this does not happen, check Fig. 1 again, or refer to the troubleshooting section at the end of this manual. You should now be able to colorize your video signals.

Fig. 1 Front Panel

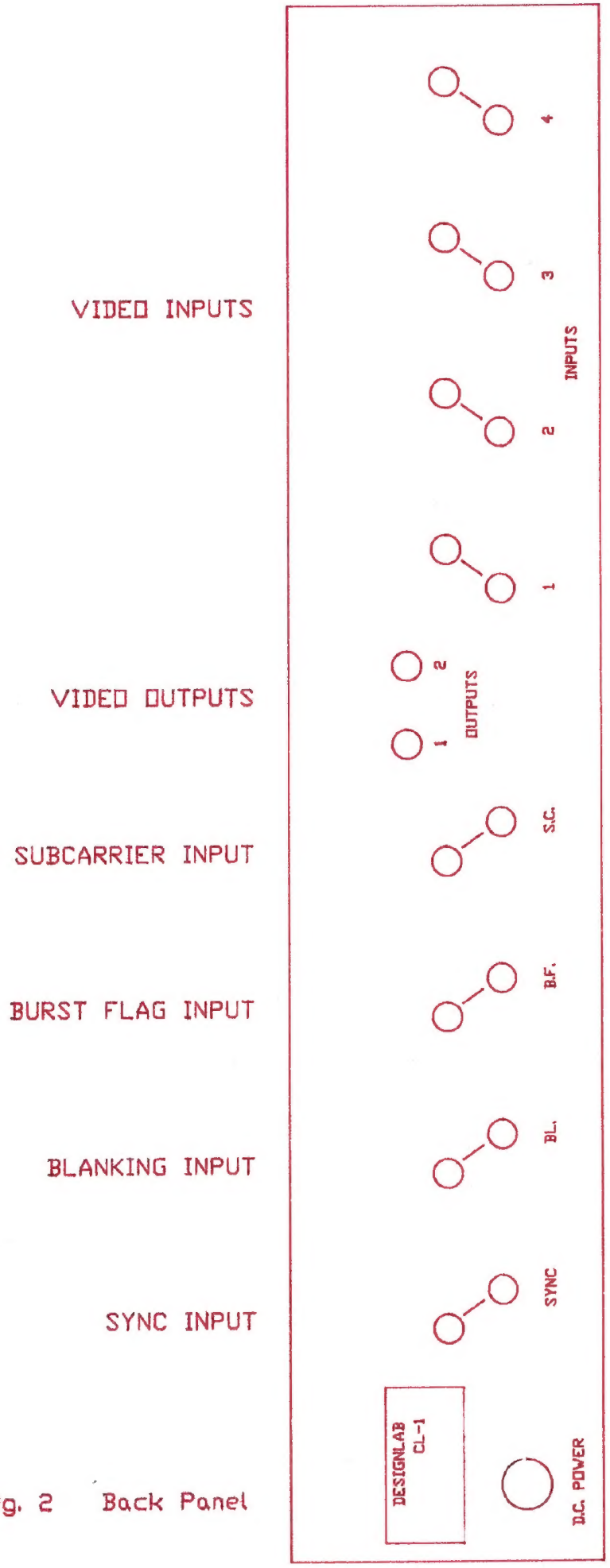

Fig. 2 Back Panel

The Channels:

Each of the four channels on the CL-1 have eight control knobs, a rotary switch and three toggle switches. The channel is divided into two sections, the video/color mixing section and the keying section.

Video/Color Mixing:

There are four knobs involved in selecting a color. The first three knobs are the Red, Green, and Blue controls. By mixing these three controls, you can get any color. For example, if you mix equal amounts of red and green, you get yellow. If you take out some of the green, you get orange. If you mix equal amounts of all three colors, they cancel each other out, and you get no color. The fourth color control is the chroma level control. This control adjusts how strong the color will be. If this control is turned down, there will be no color. As this control is turned up, the color will get stronger and stronger. If you set the chroma level too high, the color will tend to wash out the rest of the video.

The video/color mixing section also has a Video Level control, a Brightness control, and a Video Polarity switch. The video level control adjusts how much of the video input signal from that channel is mixed with the color. The video polarity switch selects whether the video input signal is positive or negative. The brightness control sets the pedestal or brightness for the channel. It can push the channel all the way to white or down to black.

Keying Section:

The keying section is similar to a soft-edged keyer, but does not switch between two images like a normal keyer. The function of the keying section is to remove certain areas in the image.

There are two control knobs, one rotary switch and two toggle switches in the keying section. The Softness control determines how hard or soft the edges of the key will be. With a hard edge, the video mixed in that channel will suddenly turn black in the areas of the key. With a soft edge, the image will fade to black instead of suddenly switching to black. The other knob in the keying section is the Clip control. The clip control decides which shade of grey in the video input signal the keying action will start at. With this control turned up, the whole image gets through the keyer. With this control turned down, none of that channel gets out. If the clip control is set somewhere in the middle of its range, then the keyer will remove a portion of that channel.

The rotary switch is used to determine the source of the key video for the channel. You can use the video from one of the other channels to do the keying for this channel. If you set the switch to '3' then the channel will key using the video from channel three. If you are only using one or two channels, make sure the key switches are set to channels that are used. The NORM/REV switch is used to select the key polarity. With this switch set to NORM, the dark parts of the image get removed. In the REV position, the bright parts of the image are removed. The last control in the keying section is the ON/OFF switch. This switch is used to shut down the channel. It can be thought of as a standby switch. It is very useful when you don't want to touch any of the knobs in the channel, but want to see another channel.

Output Mixer:

The only control in the output mixer section is the Mix Mode switch. The output mixer has two modes, the Mix mode and the Layered Mode. In the Mix mode, the mixer just blends all the channels together. In the layered mode, there is a priority to the way the channels mix. What you see on the screen at any given pixel is the channel that is the brightest channel at that pixel. The layered mode allows you to mix portions of each channel without having to see all of the video in every channel.

Output Amp:

The output amp has two controls on the front panel, and five trim controls inside the machine. The Master Brightness control and the Master Contrast control are the two front panel controls. These controls do just what they sound like they should do. They are normally set to the middle and left there. If, after mixing everything together, you want the image to be just a little bit more contrasty or a little brighter, then turn these controls. Normally these controls are not used very much.

The output amp also has five trimming controls that are inside the colorizer. These controls should only be adjusted if the CL-1 does not conform to NTSC color standards, or if you want the output to no longer meet NTSC standards. It is recomended that these trimming controls only be adjusted by an engineer, and not be adjusted very often. An oscilloscope or a waveform monitor are required to make these adjustments. The trimming controls are Sync Level, Burst Level, Burst Centering, Clip Size, and Setup.

Voltage Controls:

All of the control knobs on the front panel of the CL-1 colorizer have corresponding mini-jack inputs for voltage control. These control voltage inputs allow you to control all of the functions of the knobs using a voltage. The voltage can come from a remote control panel, an oscillator, a computer D to A converter, an audio synthesizer, or any machine that puts out a voltage in the right range. The normal range used by these inputs is from plus five volts to minus five volts. It is possible to use voltages in the zero to plus ten volt, or zero to minus ten volt ranges by adjusting the corresponding control knob to compensate for the offset in voltage. It is safe to use voltages as large as thirty volts, but most of the signal will have no effect. It is recomended that you only use voltages in the plus five volt to minus five volt range.

Tips For Colorizing:

It is recomended that the Master Contrast and the Master Brightness controls be set in the middle.

If you use the Output Mixer in the Normal Mode, you will probably need to turn up several channels before you will get an image.

If you use the Output Mixer in the Layered Mode, any one channel can make the whole image be too bright. Use the Brightness controls carefully.

The richest looking colors seem to come from the color controls only being half or two-thirds of the way up. If too much color is mixed in, it will wash out the video signal. You will end up with lots of color, but no whites or blacks in the image. You can compensate for this, a bit, by turning up the Video Level control.

Some colors only look good in combination with other colors or with high contrast video signals. For example, a red area next to a blue area will make both colors look richer. In another example, if you mix some red and some green with a video signal that is dark, you will get a brown or gold color. If you raise the video level and pedestal controls, the image will look yellow.

If the key edges look noisy, turn the softness control to a slightly softer setting.

You can get a solorized image by mixing two channels in the Layered Mix Mode. Feed the same image into the two channels. Set one channel for positive video and the other channel to negative video. Set the Video Level controls to a little stronger (more contrasty) than normal. Now play with the brightness controls until the image looks solorized.

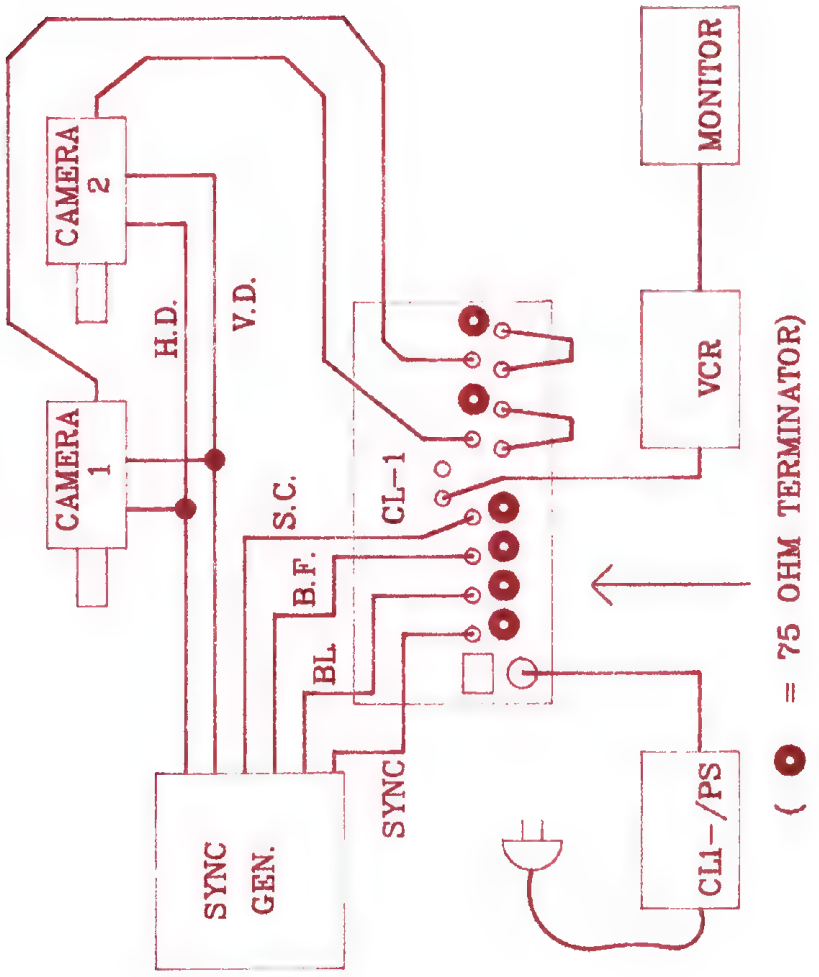

Fig. 3 TYPICAL CONNECTIONS #1

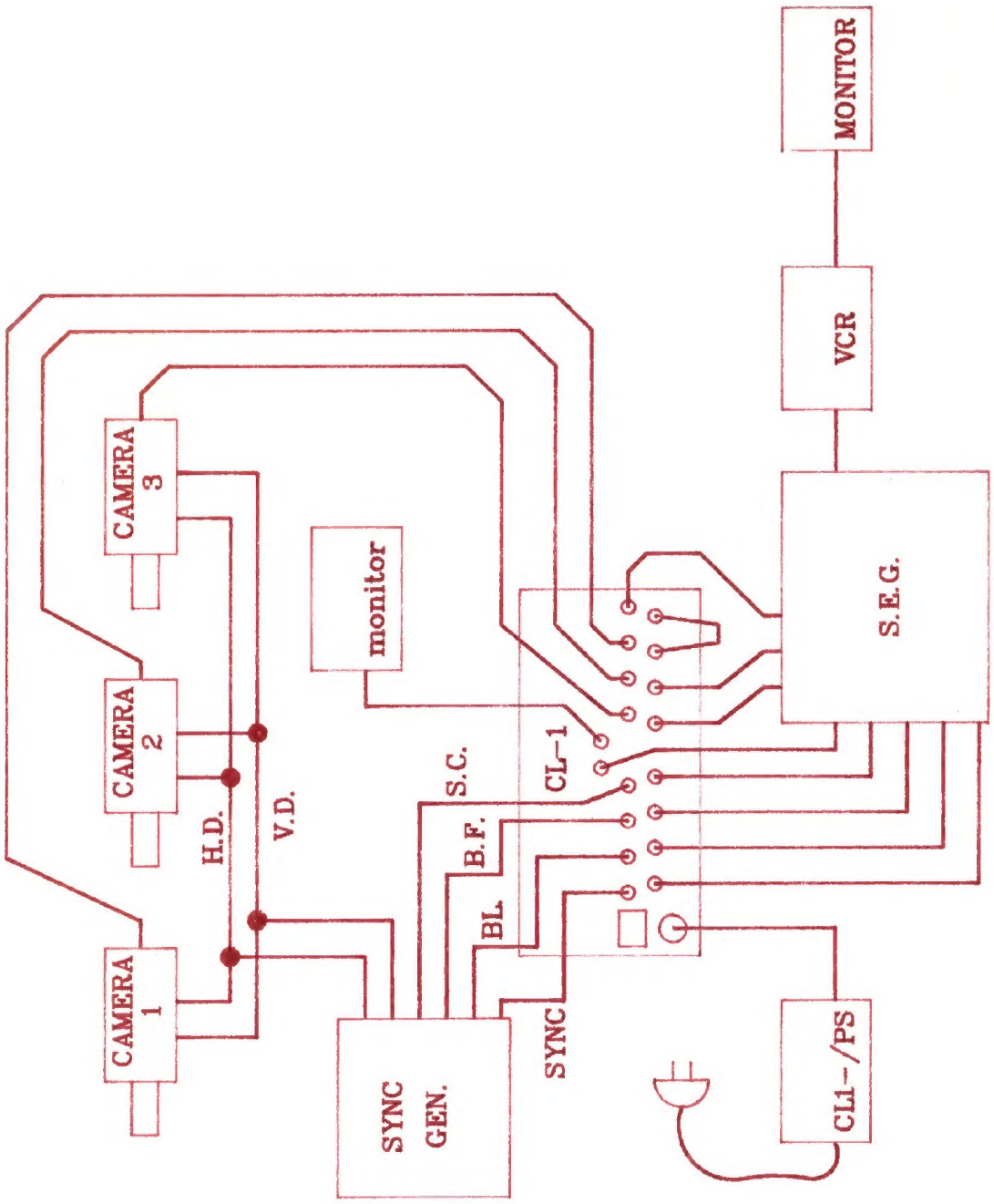

Fig. 4 TYPICAL CONNECTIONS #2

Trouble Shooting:

SYMPTOMS	POSSIBLE SOLUTION
1- No fan and no power light.	Power cord not connected. Check AC outlet. Power switch not on. Check fuse.
2- Fan works but no power light.	Check light bulb.
3- Passes video but has no color.	Sync signals might not all be connected.
4- Colors are weak.	Subcarrier might not be terminated.
5- Video input is clipping in whites.	Video input might not be terminated.
6- Channels are all black.	If mix mode is set to Mix, you may need to turn up all the brightness controls to get an image.
7- Image is white.	If mix mode is set to layered, any brightness control can make the image white. Master contrast or master brightness may be set wrong.
8- One channel doesn't work.	Key clip control set wrong. Channel Brightness set too low.

Limited Warranty:
(90 days for Labor, 1 year for Parts)

Designlab warrants this video product for a period of 90 days, to be free from defective workmanship and materials, and agrees that it will, at its option, either repair or replace the defective product or part thereof at no charge to the purchaser for parts or labor. This warranty continues for an additional nine months, for a total of one year, for parts. Labor is not provided free of charge for this additional period.

This warranty does not apply to any appearance items of the Product, nor to any Product that has been subjected to misuse, abnormal service or handling, or which has been altered or modified in design or construction.

Please do not ship this product back for service without contacting the Designlab service department first (see next page).

Service Information:

For more information or for service, contact:

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